REMARKS

In view of the above amendments and the following remarks, reconsideration of the rejections and further examination are requested. Upon entry of this amendment, the title is amended, and claims 1 and 3 are amended. No new matter has been added.

Title Objection

In item 2 of the Office Action, the specification is objected to because the Examiner states that the title is not descriptive.

The title of the Applicants has been amended to be more descriptive. Therefore, Applicants respectfully request that this objection be withdrawn.

Rejections Under 35 U.S.C. §103(a)

Claims 1 and 6 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Takahashi (US 2001/0022870) in view of Sato (JP 2-278007).

Applicants submit that the claims as now pending are allowable over the cited prior art. Specifically, amended independent claim 1 recites a dynamic bearing device comprising a reduced portion having an axial width decreasing in a radially outward direction disposed in a thrust bearing gap, the reduced portion being formed by an inclined plane disposed at a thrust bearing surface formed on the member axially opposing the flange of the shaft member, a plurality of dynamic pressure generating grooves being disposed on the inclined plane, a pumping power of the dynamic pressure generating grooves being maximized in a radially outermost portion of the reduced portion, an area radially inward of the inclined plane is dented further than a radially innermost portion of the inclined plane, the thrust bearing gap has a uniform portion with a constant width formed on an inner diameter side of the reduced portion, and a highest pressure in the thrust bearing gap is generated in a center of the uniform portion.

The recited structure enables the radially outermost portion of the reduced portion having a high peripheral speed to have the minimum width and pumping power of the dynamic pressure generating grooves to be maximized in the portion, resulting in the capability to feed significant amounts of oil to the radially inner side even at low rotational speeds. Therefore, the contact start rotational speed can be lowered. As a result, contact time between the thrust bearing surface and the thrust receiving surface at the start or the stop of operation of a motor can be reduced,

resulting in the prevention of wear on the thrust bearing portion. Moreover, the dented portion is formed in an area radially inward of the inclined plane, and the uniform portion of the thrust bearing gap is formed in this area. The uniform portion generates the highest pressure in the thrust bearing gap, enabling minimization of the torque loss in the highest pressure generating portion and rotation of a member on a rotational side at a lower torque. Furthermore, since the inclined plane can be formed from a soft metal, the inclined plane can be accurately formed and have the dynamic pressure generating grooves formed on the inclined plane.

The cited prior art fails to disclose or render obvious such a device. In particular, Takahashi discloses the inclined plane being formed on the rotor, not on the thrust bearing surface formed on the member axially opposing the flange of the shaft member, as required by the present invention, as recited in claim 1.

Moreover, generally, the shaft portion in types of devices, such as in Takahashi, is formed of a hard metal, such as stainless steel to reduce abrasion against the sleeve. Thus, it would have been difficult to perform the precision necessary to form the inclined plane and pressure generating grooves recited in the present invention, in Takahashi. Additionally, even assuming that one of ordinary skill in the art would have combined Takahashi with Sato, as suggested by the Examiner, due to pockets 1A and 1B in Takahashi, the highest pressure cannot be generated in the center of the thrust bearing gap. That is, in Takahashi, the highest pressure portion is at the bending area of the herringbone-shape groove. *See* paragraph [0003] of Takahashi. However, there is no disclosure of widening the gap at this area. Even assuming one or ordinary skill in the art would have modified Takahashi with the Sato grooves, the highest pressure area in Takahashi would not be in the center due to the pockets 1A and 1B, which have large volumes and are radially inside of the inclined plane.

Furthermore, Sato fails to disclose that the pressure generating grooves have a depth that is constant, as required by independent claim 1 of the present application. In fact, Sato discloses that the depth of the grooves increases toward an enlarged side of a reduced portion of the thrust bearing gap. *See* Figs. 1, 4, 5 and 6 of Sato.

Moreover, there is no reasoning in the prior art to modify Takahashi or Sato, such that the combination thereof would have rendered independent claim 1 obvious. Therefore, Applicants submit that independent claim 1 and its dependent claims are allowable over the cited prior art.

Claims 3, 7, 10, 14 and 15 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Tanaka (JP 7-332353) in view of Nakagawa (US 2002/0172438) and Ouchi (JP 10-269691).

Applicants submit that the claims as now pending are allowable over the cited prior art. Specifically, amended independent claim 3 recites a dynamic bearing device comprising an inner shaft portion having one end thereof facing a thrust bearing gap and the other end thereof extending to a vicinity of an upper end of a shaft portion.

This structure results in a differing thickness of resin between the inner shaft portion and the flange portion, enabling the reduction portion to be formed without post-processing because of molding shrinkage of the resin after injection molding.

The cited prior art fails to disclose or render obvious such a device. In particular, the Examiner cites Tanaka as disclosing an outer shaft portion and an inner shaft portion. *See* pg. 5 of the April 11, 2011 Office Action. However, it is clear that Tanaka fails to disclose an inner shaft portion having one end thereof facing a thrust bearing gap and the other end thereof extending to a vicinity of an upper end of a shaft portion, as recited in independent claim 3 of the present application. Further, it is clear that Nakagawa and Ouchi fail to overcome this deficiency of Tanaka.

Moreover, there is no reasoning in the prior art to modify the cited references such that the combination thereof would have rendered independent claim 3 obvious. Therefore, Applicants submit that independent claim 3 and its dependent claims are allowable over the cited prior art.

Claims 8 and 13 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Takahashi in view of Sato, and further in view of Liu (US 6,020,644).

Applicants submit that since each of these claims is dependent from claim 1 and since Liu fails to overcome the deficiencies of Takahashi and Sato, claims 8 and 13 are allowable for the reasons set forth above.

Conclusion

In view of the foregoing amendments and remarks, all of the claims now pending in this application are believed to be in condition for allowance. Reconsideration and favorable action are respectfully solicited.

Should the Examiner believe there are any remaining issues that must be resolved before this application can be allowed, it is respectfully requested that the Examiner contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

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